A FIRE DEPARTMENT TRAINING PROGRAM THAT COMPLIES WITH FEDERAL, STATE AND LOCAL REGULATIONS

EXECUTIVE DEVELOPMENT

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An applied research project submitted to the National Fire Academy
as part of the Executive Fire Officer Program

June, 1998

ABSTRACT

A modern fire department training program should consider training topics required by federal, state and local governments. The problem is, what training topics are needed to meet federal, state and local governments? The Lincoln Fire Department has developed its past training programs based upon previous practices, current trends, and local needs.

The purpose of this report was to identify the specific training topics which are required by federal, state, and local governments. This research provided guidance from federal and NFPA standards, state legislative requirements, and local requirements to be included in the development of a comprehensive training program.

This project used the action research method to answer the following questions:

1. What is the definition of required training?
2. What specific training topics are required by federal, state, and local governments?
3. How is the required training included in the present training schedules?
4. How can the required training be included in future training schedules?

During the literature review, Occupational Safety & Health Administration (OSHA), National Fire Protection Association (NFPA), state, and local standards or regulations were reviewed to identify possible solutions to the research questions. Several interviews with local and state representatives were conducted regarding training requirements.

After establishing the requirements, the report researched the current training program and compared it to OSHA standards, NFPA standards, state requirements, and local policies, procedures and executive orders.

A plan was developed. Step 1 was to review the current training program and review its four categories: (1) fire suppression, (2) technical rescue, (3) emergency medical technician auto defibulator, and (4) emergency medical technician paramedic. Step 2 was to compare existing training with the training requirement found in the Literature Review. The third step was to implement and monitor a

training program defined by the research. Step four of the plan evaluated the training program for compliance with federal, state, and local requirements.

The assumption was that the State of Nebraska is not an OSHA program state. However, LB 757 reinforced that OSHA regulations should be considered. Two limitations were the number of OSHA standards found in 29 CFR 1910 Occupational Safety and Health Standard for General Industry and 29 CFR 1926 Occupational Safety and Health Standards for the Construction Industry (Feb. 3, 1997) and determining which standards were applicable to the fire department.

The study found that in a non-OSHA program state, compliance with OSHA standards was determined by the authority having jurisdiction. In the Lincoln Fire Department, Fire Chief Mike Merwick has that authority. Chief Merwick determined that, by utilizing NFPA 1500 (1997) standards in the development of training programs, compliance with federal, state, and local requirements could be met. The NFPA 1500 (1997) section 3 on training was found to meet or exceed the OSHA requirement.

My recommendations for the Lincoln Fire Departments comprehensive training program are to do the following:

1. continue to include the requirements of NFPA 1500 (1997) including NFPA 1001 (Firefighter Qualification), NFPA 1002 (Driver Operator Qualifications), and the structural requirements of live fire burn training found in NFPA 1403,
2. implement programs to include guidance from NFPA 1003 (Standard for Airport Firefighter Professional Qualifications) and the non-structural live fire burn training referred to in NFPA 1403, and
3. develop all training programs in a modular format with clear objectives to meet the specific topics.

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INTRODUCTION

The Lincoln Fire Department is like many other organizations trying to meet firefighter training requirements. Providers of community emergency services need special skills and knowledge. These abilities have traditionally been passed on from one generation to another, or local policies and procedures have been established to address specific local needs. New trends in firefighting and fire departments have tended to broaden services as well. Fire departments should provide advanced firefighting methods, EMS, technical rescue, building inspections, code enforcement, and public education. The skills and knowledge needed to provide these services at a competent and professional level can only be acquired and maintained through training. As organizations strive to provide professional service, they can follow already developed standards of care, such as the NFPA professional qualifications standards, and Federal OSHA regulations. These professional standards and federal regulations are often used as benchmarks for minimum qualifications of knowledge, skill, and firefighter health and safety. Since 1993 its been more important than ever to examine the OSHA and NFPA standards. On September 9, 1993, the Nebraska Legislature enacted a law (LB 757), which is the Nebraska Workers Compensation Reform. LB 757 states that, although the Nebraska Department of Labor is not an OSHA or MSHA authority, it shall consider OSHA and MSHA standards as minimal acceptable standards (Nebraska Department of Labor, Division of Safety/Labor Standards, 1994). The problem is knowing what fire department training topics to incorporate to meet federal, state, and local regulations.

The Lincoln Fire Department traditionally develops the annual training plan and topics through the Fire Suppression, Administrative, and Training Deputy Chiefs of the Department. A planning session identifies topics and trends to be included within the training plan. The purpose of this report is to specifically identify training topics which are required by federal, state and local regulations to be incorporated into an annual training plan.

The research methodology used for this applied research project will be action research. Given the available resources, the purpose of this project is to identify specifically the training topics needed to satisfy federal, state, and local regulations. Four questions are asked of this project:

1. What is the definition of required training?
2. What specific training topics are required by federal, state, and local governments?
3. How is the required training included in the present training schedules?
4. How can the required training be incorporated into future training schedules?

BACKGROUND AND SIGNIFICANCE

March 6, 1990 OSHA issued a regulation dealing with job safety and health standards: Hazardous Waste Operations and Emergency Response: Final Rule (Mansfield, May 1990, OSHA, 1910.120: A Rule to Live By, American Society of Safety Engineers). This OSHA regulation is referred to as OSHA 1910.120.

When OSHA implemented final rules for Blood Borne Pathogens, and Permit Required Confined Spaces in December 1991, it established a new standard of care for health and safety as well. However, the State of Nebraska currently does not participate in a state program of the United States Department of Labors Occupational Safety and Health Administration (OSHA) Act of 1970) (The United States Department of Labor Occupational Safety and Health Administration, Feb. 24, 1998). Therefore, municipalities within Nebraska are not governed by OSHA, which would require municipal fire departments to comply with minimum job safety and health standards as established by OSHA.

Although it is not a participant in the OSHA program, Nebraska is still required to comply under the legal enforcement authority of 40 CFR part 311, which is the Environmental Protection Agencys (EPA) counterpart rule to OSHAs 1910.120 (Mansfield, May 1990, OSHA 1910.120: A Rule to Live By, American Society of Safety Engineers).

The Lincoln Fire Department has traditionally developed its training program based on fundamental skills and competency relating to emergency incidents. The Fire Chief has given the Training Division flexibility to identify and develop an annual training plan. But it is the intent of the training plan to identify training topics and annual requirements to satisfy the regulatory requirements of federal, state, and local legislation.

One reason the training plan needs to comply is Nebraska Legislative Bill 757, titled Workplace Safety Consultation Program Rules and Regulations, which states OSHA standards shall be considered in determining minimum acceptable standards. (1994)

The Lincoln City ordinance and LB 757 mean that the Lincoln Fire Department must consider the training requirements identified in OSHA. In addition, it must use National Fire Protection

Association standards for those areas not covered by OSHA. It should consider other requirements identified by the State Health Department for Emergency Medical Training when developing its annual plan. Finally, the Lincoln Fire Department needs to consider implementing local requirements as well.

This research is relevant to the Executive Development Program because it applies problem solving, creativity, and organizational change to the annual training plan of the Lincoln Fire Department.

LITERATURE REVIEW

The training program for a modern fire department should be comprehensive enough to meet the needs of the organization. Fire chiefs and training officers are expected to identify, develop, and implement training that will be commensurate with their duties and responsibilities (NFPA 1500, 1997).

Consideration must be given to the federal, state, and local regulations when developing the training program. Any training that has been identified in a regulation should be considered mandatory. In addition, many Federal regulations contain language that indicates initial or annual training should be provided.

Fire departments must also consider consensus standards such as the National Fire Protection Association (NFPA) standards. These standards are developed through a technical committee of experts in the associated field such as NFPA 1500, 1997 edition Standards on Fire Department Occupational Safety and Health. The use of consensus standards in the development of a training plan can assist training officers with a national standard of care. Training officers can then develop lessons that will provide knowledge and skill to meet those federal, state, and local regulations. Standards are commonly adopted by the authority having consensus jurisdiction.

Websters New Collegiate Dictionary defines mandatory as containing or constituting a command: (Woolf, et al 1977, p. 698). Require is defined as to demand as necessary or essential: (Woolf, et al 1977, p. 983) and annual as occurring or performed once a year (Woolf, et al 1977, p. 46).

A National Fire Academy (NFA) Executive Fire Officer Program research paper (Bradley, 1989) suggests that the issues of which OSHA standards pertain to whom, what is voluntary, and what is mandatory have been confusing problems.

Bradley says in his report, In the early 1980s the federal governments Occupation Safety and Health Administration developed standards intended to diminish the risk of firefighters by improving the protective equipment, training, and other associated issues related to fire protection (1989, p. 1).

The OSHA Handbook 2nd Ed. states [A]lthough OSHA itself does little in the way of education and training people in what must be done to observe the voluminous OSHA requirements, some of those requirements impose obligations upon employers to provide training to their employees (Moran, 1989, p. 2-28).

However, Moran states in the OSHA Handbook, One of the many problems everybody has with OSHA standards is locating and identifying those that apply in a particular business operation. A complete and accurate index is desperately needed (1989, p. 2-30).

The United States Department of Labor Occupational Safety and Health Administration encourages states to develop and operate their own job safety and health programs (The United States Department of Labor Occupational Safety and Health Administration, Feb. 24, 1998, p. 1).

The United States Department of Labor Occupational Safety and Health Administration (OSHA) explicitly requires the employer to train employees in the safety and health aspects of their jobs (U.S. Department of Labor Occupational Safety and Health Administration, 1992, p. v.).

The NFPA 1500, 1997 ed., under General Requirements 3-1.1, states The fire department shall establish and maintain a training and education program with a goal of preventing occupational accidents, deaths, injuries and illnesses (NFPA 1500, 1997, 3-1.1)

In March of 1990 the final rule for Hazardous Waste Operation was enacted by OSHA and also EPA.

The 1910.120 rule will be enforced in OSHA state plan jurisdictions (i.e. states which manage their own OSHA programs). All other states fall under the legal enforcement

> authority of CFR 40 part 311, which is the U.S. Environmental Protection agencys counterpart rule to OSHA 1910.120 (Mansfield, 1998, p. 38-39).
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> In December of 1991, OSHA published its final rule on Permit Required Confined Spaces: Training for emergency-response personnel shall include the rescue plan and procedures developed for each type of confined space they are anticipated to encounter and simulations of actual rescue conditions through practice drills. Training sessions shall be repeated as often as necessary to maintain an acceptable level of personnel competence (Wright, 1991, p. 22)

On Dec. 6, 1991, the U.S. Occupational Safety and Health Administration (OSHA) published its worker protection standard concerning occupational exposure to blood or other potentially infectious materials (Golden, 1992 Nov/Dec, p. 55).

Golden refers to the standard for initial training. This training needs to be appropriate in content and vocabulary to the educational level, literacy and language of the employees and must be provided at no cost and during working hours. After initial training, annual refresher training must be provided (Golden, 1992 Nov/Dec, p. 61).

The OSHA Document 29 CFR 1926.650 calls for a competent person on a trench or excavation site. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift (CCH Editorial Staff, February 3, 1997).

The Federal Aviation Regulations (FAR) part 139 state All rescue and firefighting personnel are properly trained to perform their duties in a manner acceptable to the administration (Federal Aviation Regulations, 1988, p. 12). The FAR breaks training down into Rescue and Firefighting Skills, Knowledge, Live Fire Practical Skills, and Emergency Medical Skills.

The Nebraska Department of Labor, through Legislative Bill 757 (LB 757), is given the authority to ensure a safe work place. The Department is NOT an OSHA or MSHA enforcement authority; however, LB 757 requires review, determination and enforcement of safety issues. For that

reason, OSHA standards and MSHA standards shall be considered in determining minimum acceptable standards (Nebraska Department of Labor Division of Safety/Labor Standards, 1994).

The State of Nebraska Department of Health addresses infection control for all emergency medical providers within the State of Nebraska. Others developed guidelines in the document Infection Control Exposure Control Plan, written to help emergency personnel comply with OSHA 1910.1030 (Jobman, 1992).

The State of Nebraska Department of Health, through legislation, established itself as the authority for competency of emergency medical technicians in the State of Nebraska. This competency is based upon skills and knowledge from training. Initial training is defined by the Department of Transportations 110 hour Curriculum for Emergency Medical Technician. Ongoing training shall consist of:

> completion of 30 hours of continuing education of skills, knowledge, or clinical experience which are the subject matter of the 110 hour United States Department of Transportation Emergency Medical Technician Course obtained during the preceding three (3) years (State of Nebraska Health and Human Services System, July, 1996, p. 44).

The competency of a certified EMT-A/D (Emergency Medical Technician Automatic Defibulator) shall be evaluated at least every 6 months (State of Nebraska Health and Human Services System, July, 1996, p. 58). The EMT-A/D must also be current in their cardiopulmonary resuscitation certification (State of Nebraska Health and Human Services System, July, 1996).

The initial training,

> For EMT-Paramedic certification, the training completed must have included, at a minimum, an approved training program consisting of two hundred twelve (212) hours of lecture; clinical experience to assure skills development and competency in (1) the performance of patient assessment, (2) starting intravenous solutions, (3) intravenous

medications, (4) endotracheal intubation, (5) esophageal intubation (optional), and (6) defibrillation; and field instruction which meets one of three options (State of Nebraska Department of Health, July, 1996, p. 8).

For continuing education, Each EMT-1 and EMT-P who requests renewal must meet either the classroom instruction and clinical experience requirements as outlined in Subsection 007.01, or the National Registry Requirements for Registration as outlined in Subsection 007.04 (State of Nebraska Department of Health, July, 1996, p. 42).

On the local level, the Lincoln Airport Authority also addresses firefighting and medical skills within their Lincoln Municipal Airport Certification Manual. The manual calls for recurrent training in medical, firefighting, and live fire burns (practice burns). This manual closely follows the FAR part 139 guidelines (Lincoln Airport Authority, Sept. 1, 1994).

The City of Lincoln adopted and implemented a city-wide Safety Committee as a result of Legislative Bill 757 (LB 757). The Executive Order will set forth the policy of the City of Lincoln to maintain a city-wide Safety Committee for all City personnel as required by Neb. Rev. Stat. 48-443 (Re-issue 1993) (City of Lincoln Safety Policy, August 16, 1993).

The Lincoln Fire Department Management Policy (M.P.) 901.03 outlines training for suppression personnel as required (Lincoln Fire Department, Feb. 1998, p. 1.)

The Lincoln Fire Department Training Division developed and implemented the City of Lincoln, Lincoln Fire Department 1998 Work Plan to assist in the delivery of training for fire department personnel (Lincoln Fire Department, Jan., 1998).

The Lincoln Fire Department EMT-Paramedics, in addition to the Nebraska Department of Health, must meet the Continuing Medical Educator (CME) requirements of a local governing agency known as Emergency Medical Services, Incorporated (EMS, Inc.). They also require an additional 24 hours of CME over the course of two years, for a total of 72 training hours (Emergency Medical Services, Inc., Oct. 25, 1995, p. 2).

The Literature Review of OSHA regulations, NFPA Standards, state, and local requirements for training shows that fire departments will need a well-organized training program.

PROCEDURES

An action research procedure was used for this project. Literature Review began in January, 1998, at the Learning Resource Center (LRC) at the National Emergency Training Center (NETC). Additional literature reviews were conducted at the Gere Public Library, Southeast Community College, Media Resource Center, both in Lincoln, Nebraska. On-line searches were utilized through the Internet to the OSHA home page. Interviews with state and local authorities were conducted for guidance and interpretations of training requirements, which the interviewed were responsible for.

Several interviews were conducted regarding training requirements. John Huff, Deputy Chief of Administration of the Lincoln Fire Department, was interviewed on January 21, 1998. D. C. Huff provided past practices of how the Lincoln Fire Department identified training prior to 1998.

Bill Madison, Deputy Chief Emergency Medical Services for the Lincoln Fire Department, was interviewed on January 21, 1998, about the State of Nebraska and local EMS training requirements. Chief of the Lincoln Fire Department Mike Merwick was interviewed on January 22, 1998, on his role regarding training. Rod Jobman, Nebraska Department of Health Emergency Medical Services Division, was interviewed on January 16, 1998, regarding the State requirements on blood borne pathogens and EMS training required by the State of Nebraska.

Mary Schweitzer, Nebraska Department of Health, Emergency Services Division, was interviewed by phone on February 6, 1998, for regulations and guidance for State of Nebraska training requirements.

Art Davis, Work Place Safety Consultation Advisor for Nebraska Department of Labor Work Place Safety Consultation, was interviewed by phone on March 13, 1998, on Legislative Bill 757 (LB 757) regarding OSHA standards as a source for safety guidance.

Eldon Diedrichs, Nebraska Department of Labor OSHA Consultation, was interviewed on April 6, 1998, on training requirements within the OSHA regulations.

John Reid, City of Lincoln Risk Management, was interviewed on April 6, 1998, by phone on the application of OSHA regulations.

A problem-solving model was used to assist with the action research procedure. The goal was to determine if the current training program was comprehensive enough to meet the needs of a modern fire department.

The current training program was analyzed and compared to the training requirements found within the Literature Review. The Lincoln Fire Department Training Program prior to 1998 as described by Deputy Chief Huff was developed from input from suppression deputy chiefs. Additional suggestions for training were provided by company officers and their firefighters and current trends in the fire service. There was no formal research of what training was required.

Objectives

The objectives of this project were to research the current training program and compare it to Federal OSHA regulations, National Fire Protection Association (NFPA) Standards, state requirements, and local policies, procedures and executive orders. The Lincoln Fire Department will incorporate the findings of the reports in its training program.

Action Plan

An Action Plan was developed to meet the objectives of the research. The first step of the Action Plan was to review the current training program for the Lincoln Fire Department, dividing it into four categories: (1) Fire Suppression Training, (2) Technical Rescue Training, (3) Emergency Medical Technician Automatic Defibulator (EMT-A/D) Training, and (4) Emergency Medical Technician Paramedic (EMT-P) Training.

The second step was to review existing training that was provided for each category.

The third step was to compare the information found in the Literature Review to the existing training program for each category.

Implementation and Evaluation of the Plan

A training program for a modern fire department will need a listing of the skills or knowledge required. The list will be based on Federal OSHA regulations, NFPA standards, state regulations, and local policies, procedures or executive orders. Following the review the fire department will develop a training program that will relate to the training skills or knowledge needed by all firefighters. The training program will need to address practical skills such as new firefighting techniques, evolutions conducted at a training center, and knowledge-based training, such as EMT-P training in a classroom setting.

Evaluation of the Results

After implementing the training program the fire department will need to evaluate the program to test its effectiveness and to make sure it complies with Federal OSHA regulations, NFPA standards, state regulations, and local policies, procedures or executive orders.

Limitations

An assumption of this research is that the State of Nebraska is not an OSHA program state. A limitation of the research is the number of OSHA safety standards and their vagueness. It is difficult to decide which standards would be applicable to the fire department. Also, the OSHA standards do not provide guidance on how to measure competency of the firefighter after completing the training.

The NFPA standard 1500 (1992) Occupational Health and Safety Standards identifies in section 3 that training is to be commensurate with firefighters duties and responsibilities. However, reference to many other NFPA standards such as 1001 1997 Standard for Firefighter Professional Qualifications is also necessary. Again, as in the OSHA Regulations, there are volumes of paragraphs and interpretations of what training is commensurate with each firefighter in a given location. For example, the wildfire firefighter training needed by a firefighter in California will be different than the training needed by a firefighter in Lincoln, Nebraska.

Definitions

Standard of Care: Authorities involved with OSHA standards, NFPA standard medical protocols, or local jurisdictions refer to a standard of care as the minimum expectation for knowledge, skill, or procedure for that position, function, or organization.

Authority having jurisdiction: Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief, fire marshal, chief of fire prevention bureau, labor or health department, building official, electrical inspector, or others having statutory authority.

RESULTS

Answers to Research Questions

1. What is the definition of required training?

Required training is training that must be provided to fire suppression and EMS personnel to complete their duties and responsibilities safely. OSHA feels, Many standards promulgated by the Occupational Safety and Health Administration (OSHA) explicitly require the employer to train employees in the safety and health aspects of their jobs (U.S. Department of Labor Occupational Safety and Health Administration, 1992, p. v.).

Deputy Chief of Administration for the Lincoln Fire Department, John Huff, and Fire Chief Mike Mewick state that OSHA regulations should be considered for training and personnel safety.

Even though Nebraska is not an OSHA plan state, Legislative Bill 757 indicates that OSHA standards shall be used as a guide. Art Davis, Work Place Safety Consultation Advisor for the Nebraska Department of Labor, strongly suggests the use of OSHA standards to be utilized in the development of a training program.

Also, John Reid, Risk Management for the City of Lincoln, states that OSHA regulations were considered when analyzing hazards within city departments even though Nebraska is not an OSHA plan state.

The NFPA 1500 Standard on Occupational Safety and Health Program provides the following definition: Authority Having Jurisdictions: the organization, office or individual responsible for approving equipment, an installation, or a procedure (NFPA 1500, 1997, 1-5).

After comparing OSHA standards with NFPA standards, Bradley finds that if a safety standard complies with NFPA 1500, the other standards would be met as well (Bradley, 1989, p. 2).

2. What specific training topics are required by federal, state, and local governments?

The authority having jurisdiction for the Lincoln Fire Department, Merwick has stated even though Nebraska is not an OSHA plan state, OSHA regulations shall be considered for the training program.

OSHA has developed a document titled Training Requirements in OSHA Standards and Training Guidelines (OSHA 22.54, Revised). This document can assist developing a training plan meeting OSHA requirements (U.S. Department of Labor Occupational Safety and Health Administration, 1992).

OSHA standards that should be considered for training are as follows:

General Industry Training Requirements, 29 CFR Part 1910.

A. 1910.66 Powered Platforms, Manlifts and Vehicle-mounted Work Platforms.

B. 1910.5 Hearing Protection.

C. 1910.120 Hazardous Waste Operations and Emergency Response.

D. 1910.134 Respiratory Protection.

E. 1910.146 Permit Required Confined Space.

Members of each truck company are required to receive competent personnel training for OSHA Standard 1926.650 Excavations.

The EPA Region VII provides 40 hours of hazardous materials training for all Hazardous Materials Technicians.

F. 1910.147 The Control of Hazardous Energy (Lock Out/Tag Out).

G. 1910.155 Fire Protection.

H. 1910.156 Fire Brigades.

I. 1910.157 Portable Fire Extinguishers.

J. 1910.253 Oxygen-Fuel Gas Welding and Cutting.

K. 1910.1030 Blood Borne Pathogens.

Construction Training Requirements, 29 CFR Part 1926.

1926.650 Excavations General Protection Requirements (Excavations, Trenching a

The NFPA 1500 Standard on Fire Department Occupational Safety and Health Program, Chapter 3 Training and Education, provides a comprehensive guide for the development of a training program.

3-2 Training Requirements.

A. 3-2.1 Shall meet at least the requirement of Firefighter I as specified in NFPA 1001, Standard on Firefighter Professional Qualifications.

B. 3-2.2 Live Firefighting shall be conducted in compliance with NFPA 1403, Standard on Live Fire Training.

C. 3-2.3 All fire apparatus operators shall meet NFPA 1002 Standard for Fire Department Vehicle Driver/Operator Professional Qualifications.

D. 3-2.4 All members primarily assigned to aircraft rescue and firefighting shall meet NFPA 1003, Standard for Airport Firefighter Professional Qualifications.

E. 3-2.5 All fire officers shall meet the requirements for Fire Officer I. NFPA 1021, Standard for Fire Officer Professional Qualifications.

F. 3-2.7 All members who engage in emergency medical services shall meet the requirements of the authority having jurisdiction.

G. 3-2.8 All members shall meet the requirements for infectious disease as specified in NFPA 1581, Standard on Fire Department Infection Control Program.

H. 3-2.9 Members who respond to incidents involving release of hazardous substance shall be trained to at least the requirements for the First Responder Operations level as specified in NFPA 472, Standard for Professional Competence of Responders to Hazardous Materials Incidents.

I. 3-2.11 All members who engage in emergency operations shall be trained commensurate with their duties and responsibilities.

J. 3-2.12 Members who use respiratory protection equipment shall be qualified to use respiratory protection.

K. 3-2.14 Where the fire department is responsible for non-structural firefighting the fire department shall provide training in compliance to NFPA 1403, Standard on Live Fire Training Evolutions.

3-3 Frequency.

A. 3-3.1 Training shall be provided for all members as often as necessary to meet the applicable requirements, but not less than twice a year.

B. 3-3.2 Whenever changes are made in standard operating procedures or technology, training shall be provided.

C. 3-3.3 The fire department shall provide structural firefighting training at least monthly.

D. 3-3.4 Members who engage in structural firefighting shall attend a minimum of 10 monthly sessions and shall participate in at least 24 hours of structural firefighting training annually.

E. 3-3.6 Members who occasionally are assigned to non-structural firefighting operations shall attend training consisting of at least 9 hours annually.

3-4 Special Operations.

A. 3.4.1 Specific and advanced training shall be provided to those who engage in special operations.

B. 3-4.2 The fire department shall develop written standard operating procedures and include these in procedures in advanced training.

C. 3-4.3 Members who are likely to be involved in hazardous materials mitigation shall be trained to the appropriate level above operations in accordance to NFPA 472, Standard for Professional Competence of Responders to Hazardous Materials Incidents (NFPA 1500, 1997).

The U.S. Department of Transportation Federal Aviation Administration requires training for those firefighters who are responsible for aircraft rescue and firefighting defined in Part 139, Certification and Operations: Land Airports Serving Certain Air Carriers.

The training curriculum shall include initial and recurrent instruction in at least the following areas:

1. Airport familiarization.
2. Aircraft familiarization.
3. Rescue and firefighting personal safety.
4. Emergency Communications Systems on the airport, including fire alarms.
5. Use of fire hoses, nozzles, turrets and other appliances required for compliance with this part.
6. Application of the types of extinguishing agents required for compliance with this part.
7. Emergency aircraft evacuation assistance.
8. Firefighting operations.
9. Adapting and using structural rescue and firefighting equipment for aircraft rescue and firefighting.
10. Aircraft cargo hazards.
11. Familiarization with firefighters duties under the Airport Emergency Plan (Federal Aviation Regulations, 1988, p. 12).

Miscellaneous training includes the annual fitness test of the Self Contained Breathing Apparatus (SCBA). The fit test is required by all individual firefighters. Six personnel are currently required to

complete Aircraft Rescue and Firefighting Live Fire training equipment to meet Federal Aviation Regulation, Part 139.

On the state level, the specific training topics required for Emergency Medical Technician Automatic Defibulator Personnel (EMT A/D) and Emergency Medical Technician Paramedic (EMT-P) are mandated by the State of Nebraska Department of Health and the Emergency Medical Services, Incorporated (EMS, Inc.) located in Lincoln, Nebraska.

The Nebraska Department of Health and Human Services (July, 1996) requires training as follows:

> Completion of 30 hours of continuing education in a combination of skills, knowledge, or clinical experience which are the subject matter of the 110 hours United States Department of Transportation Emergency Technician Course obtained during the preceding three (3) years (State of Nebraska, Health and Human Services System, July, 1996, p. 44).

The automatic defibulator competency evaluation shall be completed every six months. The completion of a cardiopulmonary resuscitation course that meets the requirement of this regulation that results in a current certificate is required as well (State of Nebraska, Health and Human Services System, July, 1996).

> Each EMT-I and EMT-P who requests renewal must meet either the classroom instruction and clinical experience requirements as outlined in Subsection 007.01, or the National Registry Requirements for Registration as outlined in Subsection 007.04 (State of Nebraska, Department of Health, July, 1996, p. 42).

There are also local requirements:

The Lincoln Municipal Airport Certification Manual states that This training shall be performed by or coordinated through the Lincoln Fire Department (Lincoln Airport Authority, Sept. 1, 1994, p. 319-4).

The Lincoln Fire Department has a management policy, 901.03, in force that defines training and gives guidance to fire companies on their requirements (Lincoln Fire Department, Feb. 1988).

An additional training requirement for Lincoln Fire Department personnel is mandated by EMS, Inc. EMS, Inc., requires an additional 24 hours of CME (Continuing Medical Education) over the course of two years for a total of 72 training hours (Emergency Medical Services, Inc., Oct 25, 1995, p. 2).

All paramedics are required by EMS, Inc., to receive one intubation per quarter and to receive Advanced Cardiac Life Support Training as required by the National Registry. All bike medic personnel are required to participate in bike training and orientation (Lincoln Fire Department, January, 1998).

3. How is the required training included in the present training schedules?

The current training program for the Lincoln Fire Department was implemented in January, 1998. It currently includes the annual training for fire suppression, emergency medical, and miscellaneous training. It is published by the Lincoln Fire Department Training Division as the City of Lincoln Fire Department 1998 Annual Work Plan. The Annual Work Plan consists of 12 monthly fire suppression videos and 12 monthly EMS videos, which are broadcast over the local cable television system. Each video is approximately 1 hour.

Fire suppression personnel are assigned by the work plan to attend 13 training blocks which are approximately 3 hours long. These longer periods allow firefighters to demonstrate practical skills that comply with NFPA, OSHA, or local policies.

There are 12 EMT training sessions for all fire department personnel. They are delivered by third party contracts for continuing education of EMT skills. The EMT training is provided by the Lincoln Medical Education Foundation located in Lincoln, Nebraska. Each EMT training session is approximately 1 1/2 hours.

Firefighter paramedics are given additional CME through EMS, Inc., to assist with their additional training hours and requirements needed by paramedics. Each paramedic is required to

deliver 1 hour per month of team EMT training to their assigned company. The topic is identified by the DC of EMS. Each fire company is provided a practical skill lesson to be completed at the company level each quarter. During that three-month period the company officer will deliver the training to the assigned personnel. Each lesson lasts about 3 hours.

Each fire company is assigned a CD-ROM interactive training disk on fire suppression skill or knowledge. Each company officer is responsible to ensure that the CD-ROM training is completed by each assigned firefighter within the quarter. The CD-ROM training takes about 1 hour.

Each month 3 hours of technical training are provided for technical rescue skill. Currently, all personnel assigned to trucks 1, 5, 7, and 8 receive the technical rescue training.

Each month the Hazardous Material Team receives Hazardous Materials Technician Level Training, designed to comply with OSHA 1910.120 and NFPA 472.

The Annual Work Plan allows for 24 hours of aircraft rescue and firefighting training to meet Federal Aviation Regulations 139.

The following tables compare the Lincoln Fire Departments training program with the requirements:

Table 1

Comparison of Lincoln Fire Department Training Program and

the Current OSHA Requirements

Number	OSHA Requirements	Does the Current Lincoln Fire Department Training Meet This Requirement? Y/N
1910.66	Powered Platform, Manlifts and Vehicle Mounted Work Platforms	Yes (through FAO certification every 4 years.
1910.95	Hearing Protection	Yes. (Initial training as new recruit.)
1910.12	Hazardous Waste Operations and Emergency Responses.	Yes. Annually.
1910.134	Respiratory Protection	Yes. Annually.
1910.146	Permit Required Confined Space.	Yes. Annually.
1910.147	Lock Out/Tag Out	Yes. Annually.
1910.155	Fire Protection	No.
1910.156	Fire Brigade	No.
1910.157	Fire Extinguishers	Yes. Initial training as new recruit but not annual.
1910.253	Oxygen-Fuel Gas Welding and Cutting	Yes. Initial training for all truck personnel in 1997 but not annual.
191.103	Blood Borne Pathogens	Yes. Annually.

Table 2

Comparisons of the Lincoln Fire Department Training Program and

the NFPA 1500 Standards for Training Requirements

Number	NFPA 1500 Standards Training Requirements	Does the Current Lincoln Fire Department Training Meet This Requirement? Y/N
3-2.1	Firefighter Qualifications NFPA 1001	Yes. Initial training as new recruit and annually.
3-2.2	Structured Live Fire Training NFPA 1403	Yes. Initial training as new recruit and annual.
3-2.3	Fire Apparatus Operators NFPA 1002	Yes. Initial training and certification required every 4 years.
3-2.4	Aircraft Rescue and Firefighting NFPA 1003	No. Not to NFPA 1003.
3-2.5	Fire Officer Qualifications NFPA 1021	Yes. Must complete prior to promotion.
3-2.7	Emergency Medical Services	Yes. State legislated.
3-2.8	Infectious Disease NFPA 1581	Yes. Initial training as new recruit and annually.
3-2.9	Hazardous Materials NFPA 472	Yes. Initial training as new recruit and annually.
3-2.11	Commensurate Training	Yes. Initial training as new recruit and annually.
3-2.12	Respiratory Protection	Yes. Initial training as new recruit and annually.
3-2.14	Non-Structural Live Fire	No.

Table 3.

Comparison of the Lincoln Fire Department Training Program and

the NFPA 1500 Standards for Training Frequency

Number	NFPA 1500 Standards for Training Frequency	Does the Lincoln Fire Department Training Meet this Frequency? Y/N
3-3.1	Training for all members not less than twice per year.	Yes. There are at least 33 contacts for all firefighters annually.
3-3.2	Changes in policies or technology.	No. Only on occasion.
3-3.3.	Structural firefighting monthly.	Yes. By monthly videos, monthly block training, CD-ROM quarterly training, or quarterly lesson plans.
3-3.4	Minimum of 10 monthly sessions and at least 24 hours annually.	Yes. 12 hours video, 1 each month 12 hours quarterly, 1 per quarter 3 hours each. 4 hours CD-ROM 1 hour per quarter 39 hours block training 3 hours each session 67 hours annually for suppression.
3-3.6	Firefighters who occasionally are assigned to non-structural firefighting operations shall have at least 9 hours of non-structural firefighting training annually.	No.
3-4.1	Specific or advanced training.	Yes. Haz. Mat. Ops & Tech Rescue, 8 hours.
3-4.2	Written policies for special ops.	Yes.
3-4.3	Hazard material technician level.	Yes. 3 hours per month, 36 hours

Table 4

Comparison of the Lincoln Fire Department Training Program and

the Federal Aviation Regulations Part 139

Aircraft Rescue and Firefighting Requirements

Rescue and Firefighting Requirements	Does the Lincoln Fire Department Training Meet This Requirement? Y/N
(i) Airport Familiarization	Yes. Annually.
(ii) Aircraft Familiarization	Yes. Annually.
(iii) Rescue and Firefighting Personal Safety	Yes. Annually.
(iv) Emergency Communications Systems on the Airport, Including Fire Alarms	Yes. Annually.
(v) Use of Fire Hose, Nozzles, Turrets and Other Appliances	Yes. Annually.
(vi) Application of Extinguishing Agents	Yes. Annually.
(vii) Emergency Aircraft Evacuation Assistance	Yes. Annually.
(viii) Firefighting Operations	Yes. Annually.
(ix) Adapting and Using Structural Rescue and Firefighting Equipment	Yes. Annually.
(x) Aircraft Cargo Hazards	Yes. Annually.
(xi) Familiarization with Firefighters' Duties Under the Airport Emergency Plan	Yes. Annually.

Table 5.

Comparison of the Lincoln Fire Department Training Program and

the Federal Aviation Regulation Part 139

Emergency Medical Service Requirements

Federal Aviation Regulations Part 139 EMS Requirements Identified from Research	Does the Lincoln Fire Department Training Meet This Requirement? Y/N
(i) Bleeding	Yes. Annually.
(ii) Cardiopulmonary Resuscitation	Yes. Annually.
(iii) Shock	Yes. Annually.
(iv) Primary Patient Survey	Yes. Annually.
(v) Injuries to the Skull, Spine, Chest and Extremities	Yes. Annually.
(vi) Internal Injuries	Yes. Annually.
(vii) Moving Patients	Yes. Annually.
(viii)Burns	Yes. Annually.
(ix) Triage	Yes. Annually.

Table 6.

Comparison of the Lincoln Fire Department Training Program and the State Emergency Medical

Training Requirements

	State Emergency Medical Training Requirements Identified from Research	Does the Lincoln Fire Department Training Meet This Requirement? Y/N
EMT A/D	Cardiopulmonary resuscitation every two years.	Yes.
EMT A/D	Thirty hours over 3 years.	Yes.
EMT A/D	Auto defib recertification every 6 months.	Yes.
EMT A/D	National registry 48 hours every 2 years.	Yes.
EMT-P	EMS, Inc. additional 24 hours every 2 years	Yes.

4. How can the required training be included into future training schedules?

Comparing the present training with the requirements shows the areas where Lincoln needs additional training.

Two additional OSHA standards and two NFPA standards should be considered in training. They are OSHA 1910.155 Fire Protection and OSHA 1910.156 Fire Brigades. The NFPA standards to be included are NFPA 1003 Aircraft Rescue and Firefighting and a portion of NFPA 1403 Live Fire Burn Requirements. The Lincoln Fire Department lacks the non-structural portion of the standard.

The annual work plan for future training schedules should include within its monthly video schedules some training to address OSHA 1910.155 and OSHA 1910.156. The Annual Federal Aviation Regulation Part 139 should be included in the next training reference to NFPA 1003. The monthly block training will need to include non-structural live fire burn training to fully comply with NFPA 1403.

DISCUSSION

A comprehensive training program is critical to the safety, health, and efficiency of a modern fire department.

Deputy Chief of Administration John Huff and John Reid, Risk Management Supervisor for the City of Lincoln, both agree that OSHA standards should be considered when developing a training program.

The difficulty of applying OSHA standards to a training program is in locating and deciding those that apply (Moran, 1989).

The research indicates that when developing a training program, NFPA 1500 (1997) should be used for primary guidance. This document contains national concerns that should be addressed by modern fire departments. If its standards are met, OSHA standards will also be met.

The current training program used by the Lincoln Fire Department does address most of the OSHA, NFPA, state, and local requirements for initial and ongoing training.

Additional topics to be included in the training program should be researched to be sure the necessary NFPA requirements are met as well as all state and local requirements.

The Lincoln Fire Department will use the NFPA 1500 (1997) in the development of future annual work plans. Because of the flexibility of the current plan, it can be modified to include the recommendations of this research to better comply with federal, state, and local training requirements.

The additional regulations that the Lincoln Fire Department will need to address in its annual training program are as follows:

A. OSHA 1910.155 Fire Protection.

B. OSHA 1910.156 Fire Brigades.

C. NFPA 1003 Aircraft Rescue and Firefighting.

D. NFPA 1403 Live Burn Requirements (one portion).

RECOMMENDATIONS

The Lincoln Fire Department should continue to develop its work plan using the current development format. The research indicates that the NFPA 1500 (1997) should continue to be used as a guide in developing the program (Bradley, 1989).

Specific NFPA standards such as those described in 1001, 1002, 1003, and 1004 can be met by using the NFPA 1500 for guidance. By complying with those specific NFPA standards, the OSHA standards will be satisfied as well.

The training program development should be modular in design and incorporate the training topics and objectives based upon federal, state, and local requirements.

The research did not provide a specific menu of required training topics. It did, however, describe the NFPA standards, OSHA training requirements, Federal Aviation Regulations, 139, State of Nebraska Department of Health rules and regulations for emergency medical services, and local rules and regulations. It then showed which of these regulations the Lincoln Fire Department now satisfies and which of them need to be added to the training program.

With the information in this report the Lincoln Fire Department can develop a training program which will ensure that topics for training meet federal, state, and local requirements.

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